REVISED 01/09

LSUE COURSE SYLLABUS

I.	PHYS 2109	Instructor: Science faculty

II.	Course description from the current LSUE catalog:

General Physics Laboratory. Lab. 3; Cr. 1.
Laboratory course to accompany Physics 2002 or 2102.
Prerequisite: Physics 2108 and credit or registration in Physics 2002 or 2102.

III.	Textbook(s) and other required materials:

None required.

IV.	Evaluation/grading (policy and basis; number and frequency of tests and papers; weights of particular tests or papers; etc.):

Each laboratory period will be terminated with a written report which is due at the end of that period. Laboratory reports are graded on an A+, A, A-, B+, etc. system.

V.	Policies pertaining to attendance, late work, make-up work, etc.:

Attendance for each lab period is required. Each late report has an automatic one letter grade penalty associated with it, unless prior permission is issued by the instructor. Make-up work for a missed laboratory will be held on the last day of lab class.

VI.	Course objectives:

The following are primary objective of this course:

A. To develop some understanding of experimental procedures.
B. To give experience in solving experimental problems.
C. To become familiar with common laboratory instruments.
D. To expose the student to the performance limitations of equipment in range, accuracy, and sensitivity.
E. To provide the student an opportunity to analyze errors that will occur in experimental work.
F. To gain experience in writing technical reports.
G. To develop a sense of “logical deduction” as how the topic of laboratory experiment is related to the laws and functions of the nature.

VII. Major instructional objectives:

The aim of this laboratory course is to provide an opportunity for the physics students to gain an insight into the materials and methods of physics through experience in the laboratory. Also, this course is designed to give the student direct experience with some of the physical facts of nature upon which physical principles rest.

VIII. Brief summary of course content by major units of instruction:

1. Standing Waves in a String
   The student studies the relation between tension and wavelength in a vibrating string. From a measurement of tension and wavelength he is able to compute the frequency of vibration.

2. Air column Resonance: The Velocity of Sound in Air
   The object is to determine the velocity of sound in air at ordinary temperatures from measurements of the wavelength at a given frequency.

3. The field and the equipotential plot
   The field and equipotential configuration of different charge distributions (for example, parallel plates,) will be plotted and, then, compared with their accepted models.

4. Ohm's Law
   Ohm's Law is investigated as applied to a circuit component in a simple circuit.

5. The Exponential Functions and semilog and Log-Log plots
   Purpose of this experiment is to acquaint the students with plot and characteristics of the exponential and regular functions using semi-log or log-log papers. This technique will later be used for Nuclear Radiation analysis.

6. The Dice atom: The radioactivity analogue
   A statistical study of how radioactive materials disintegrate and form other materials.

7. The absorption of Nuclear Radiation
   Absorption of alpha, beta and gamma radiation by different materials are studied. The relevant factors of absorption for each material are determine & studied.

8. Introduction to the oscilloscope
   The purpose of this experiment is to familiarize students with the function of an oscilloscope and to measure some quantities of interest such as voltage, current and frequency.

9. Spherical Mirrors and Lenses

The fundamental properties of spherical mirrors and lenses are investigated so as to learn the parameters that govern their use.

10. The Prism Spectrometer: Dispersion and the Index of Refraction
    Using Snell's law of refraction and geometry, the student determines the index of refraction of the prism glass for a specific wavelength.

11. The Transmission Diffraction Grating: Measuring the Wavelengths of Light
    The properties of a transmission grating are investigated and the wavelengths of several spectral lines are determined.

IX. Methods of instruction:

a. Students are divided into teams (groups) which will be working as a group of junior scientists. Different teams are permitted and encouraged to exchange ideas with each other as well as with instructor; this emulating an actual scientific cooperation. However, copying exact format, calculation, data, analysis, etc. are forbidden (either from team to team or individual to individual). The responsibility for each experiment is equally divided between the members.

b. Computer in physics laboratory will be used to analyze data and to plot graphs. Through the use of physics softwares, the computer will also be utilized to broaden the scope of scientific knowledge of the students.

ADS Americans with Disabilities Act) Statement

Any student who is a "qualified individual with a disability" as defined by Section 504 of the Rehabilitation Act and Title II of the ADA, and who will need accommodated services (e.g., note takers, extended test time, audiotape, tutorials, etc.) for this course must register and request services through the Office of Academic Assistance Programs, S-150.

CSD CODE OF STUDENT CONDUCT

LSUE enforces discipline on campus to protect the academic environment of the campus and the health and safety of all members of the University community. To accomplish this objective, the University enforces standards of conduct for its students. Students who violate these standards can be denied membership in the LSUE community through imposition of disciplinary sanctions.

The LSUE Code of Student Conduct can be found on the LSUE website (lsue.edu). Follow the "Current Students" link from the homepage, and then click on "Student Handbook."